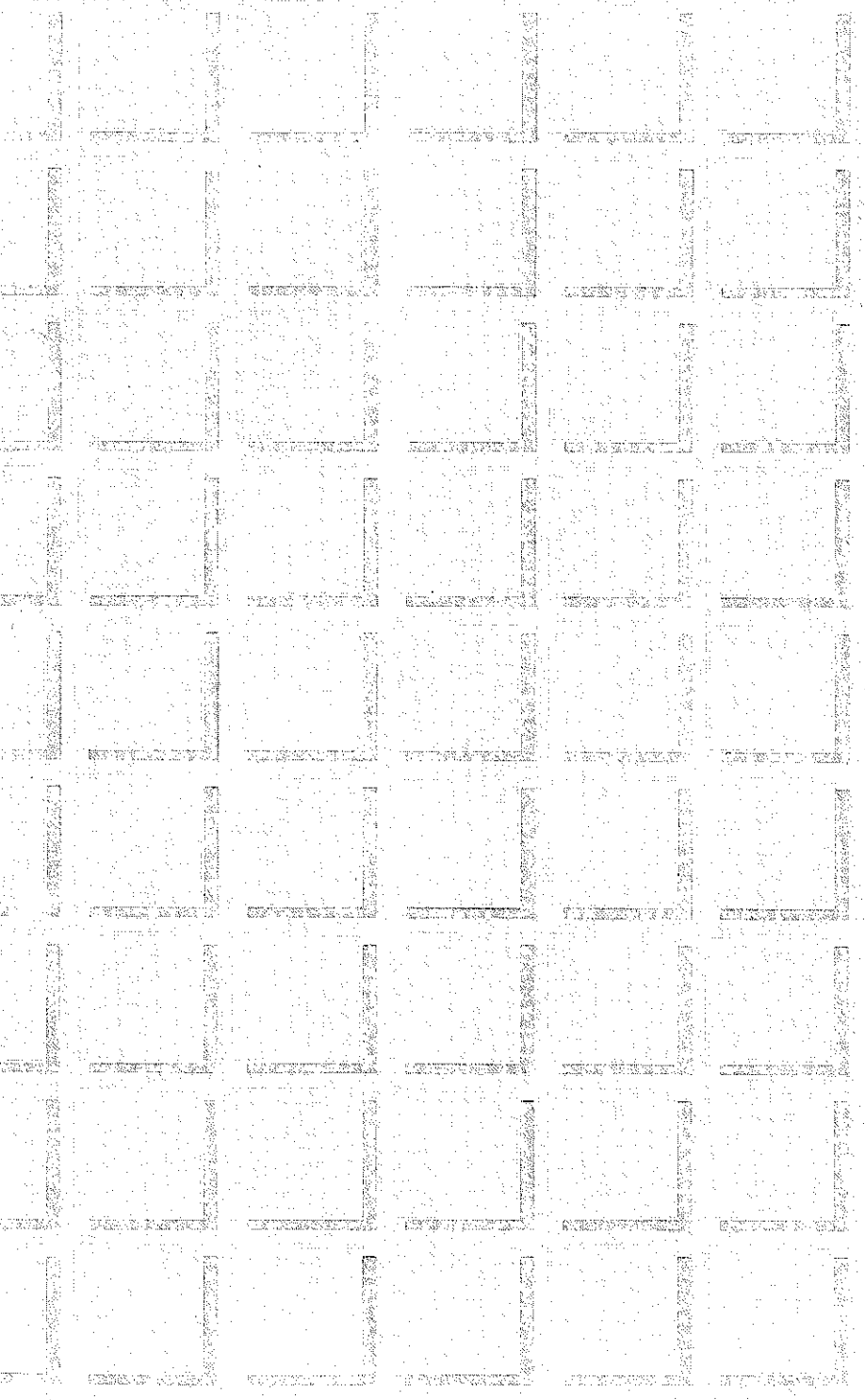


Operating Instructions

Video Cassette Recorder

NV-SD20 Series

VHS PAL SUPER DRIVE SYSTEM

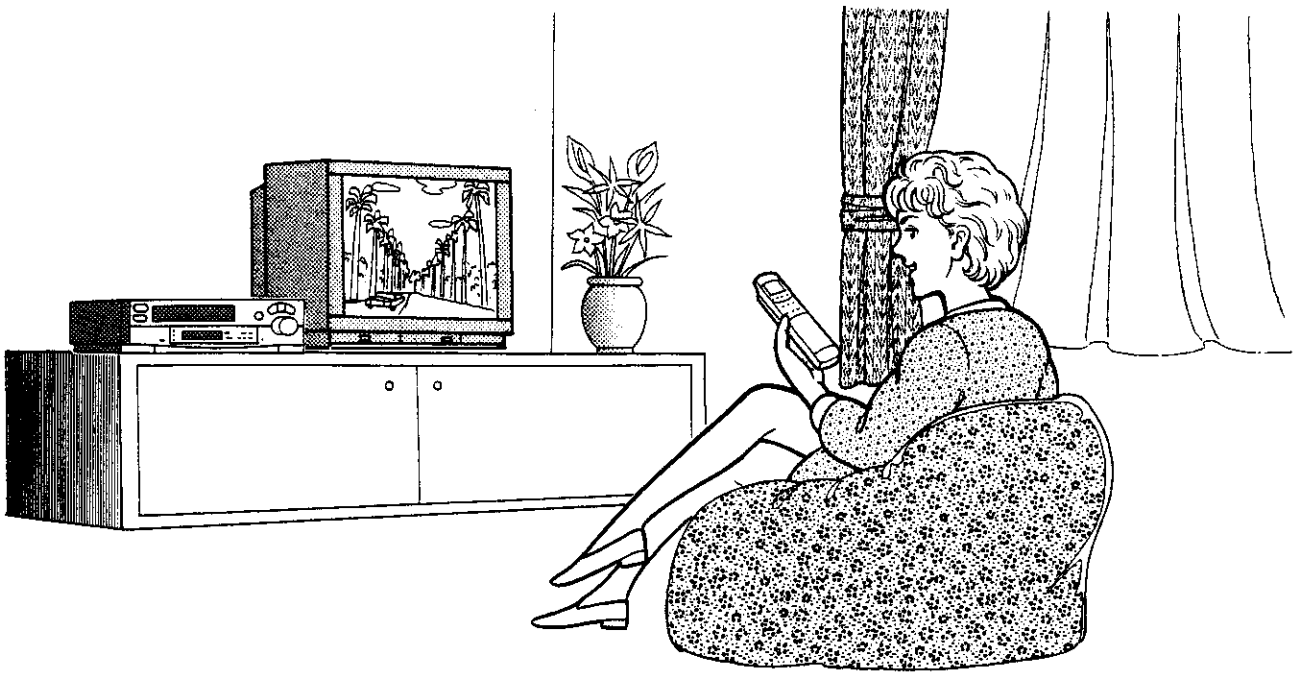
Before attempting to connect, operate or adjust this product, please read these instructions completely.

VQT5137

Dear Customer

May we take this opportunity to thank you for purchasing this Panasonic Video Cassette Recorder.

We would particularly advise that you carefully study the Operating Instructions before attempting to operate the unit and that you note the listed precautions.



Information for Your Safety

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

NV-SD20A: Australian model
NV-SD20EA: New Zealand model

FOR YOUR SAFETY

■ **DO NOT REMOVE OUTER COVER.**
To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

HQ (High Quality) Picture System

Video recorders carrying the HQ symbol mark feature the new VHS High Quality Picture System. This system assures complete compatibility with VTRs that use the conventional VHS system.

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Precautions

Please read these cautions before you operate this VTR.

Avoid Sudden Changes in Temperature

If the VTR is suddenly moved from a cold place to a warm place, moisture may form on the tape and inside the VTR. In this case, the Dew Indicator "☝" will flash on and off and the VTR will not operate.

Humidity and Dust

Avoid places where there is high humidity or much dust, which may cause damage to internal parts.

Do Not Obstruct the Ventilation Holes

The ventilation holes prevent abnormal increase in temperature. Do not block or cover these holes. Especially avoid covering the holes with soft materials such as cloth or paper.

Keep away from High Temperature

Keep the VTR away from extreme direct head such as direct sunlight, heating radiators, or closed automobiles.

Keep Magnets away

Never bring a magnet or magnetized object near the VTR because it will adversely affect the performance of the VTR.

No Fingers or Other Objects Inside

Touching internal parts of this VTR is dangerous, and may cause serious damage to the VTR. Do not attempt to disassemble the VTR. There are no user serviceable parts inside.

Keep Water away

Keep the VTR away from flower vases, tubs, sinks, etc. CAUTION: If liquids are spilled into the VTR, serious damage could occur. If you spill any liquid into the VTR, consult qualified service personnel.

Lightning

To avoid damage by lightning, disconnect the aerial plug from the VTR.

Cleaning the VTR

Wipe the VTR with a clean, dry cloth. Never use cleaning fluid, or other chemicals. And do not use compressed air to remove dust.

Stacking

Place the VTR in a horizontal position, and do not place anything heavy on it.

Video Head Clogging

The video heads place picture signals on the tape during recording and read picture signals from the tape during playback and they are, therefore, of critical importance for the picture quality. To ensure that they can always provide optimum picture quality, this VTR is equipped with an Auto Head Cleaning Function that removes tape particles and dust from the video heads. However, if the VTR is used over extremely long periods of time, these heads may still become dirty and clogged. In such a case, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, during the playback of a tape, the sound is reproduced normally, but no picture is seen, or the picture is greatly distorted. When such a symptom case occurs have the recorder checked by qualified service personnel.

If Dew Condensation Forms in the VTR

Condensation may form in the VTR if:

- The VTR is in a room when the heater has just been turned on.
- The VTR is in a room with steam or high humidity.
- The VTR is brought from cold surroundings into a well-heated room.
- The VTR is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

When dew forms in the VTR:

The Dew Indicator "☝" on the Multi-Function Display will flash on and off and all the function buttons are made non-operational to protect the tape and the video heads. When the Dew Indicator flashes, wait until this indicator disappears.

- If dew condensation forms inside the VTR while the OPERATE Switch is off, it will turn on automatically and the Dew Indicator will flash on and off. As soon as the dew condensation has been dissolved, the VTR will turn itself off again.

Setting Up

Connections

This tells you how to connect the VTR to an aerial, TV, etc.

Tuning the TV to your VTR

The VTR supplies a signal to the TV set via the RF coaxial cable.

For Australia: On channel 0 or 1
For New Zealand: On channel 2 or 3

Storing TV Broadcasts into your VTR

The VTR is fitted with its own TV tuner (just like a normal TV set) and can be tuned to receive up to 99 TV broadcast stations.

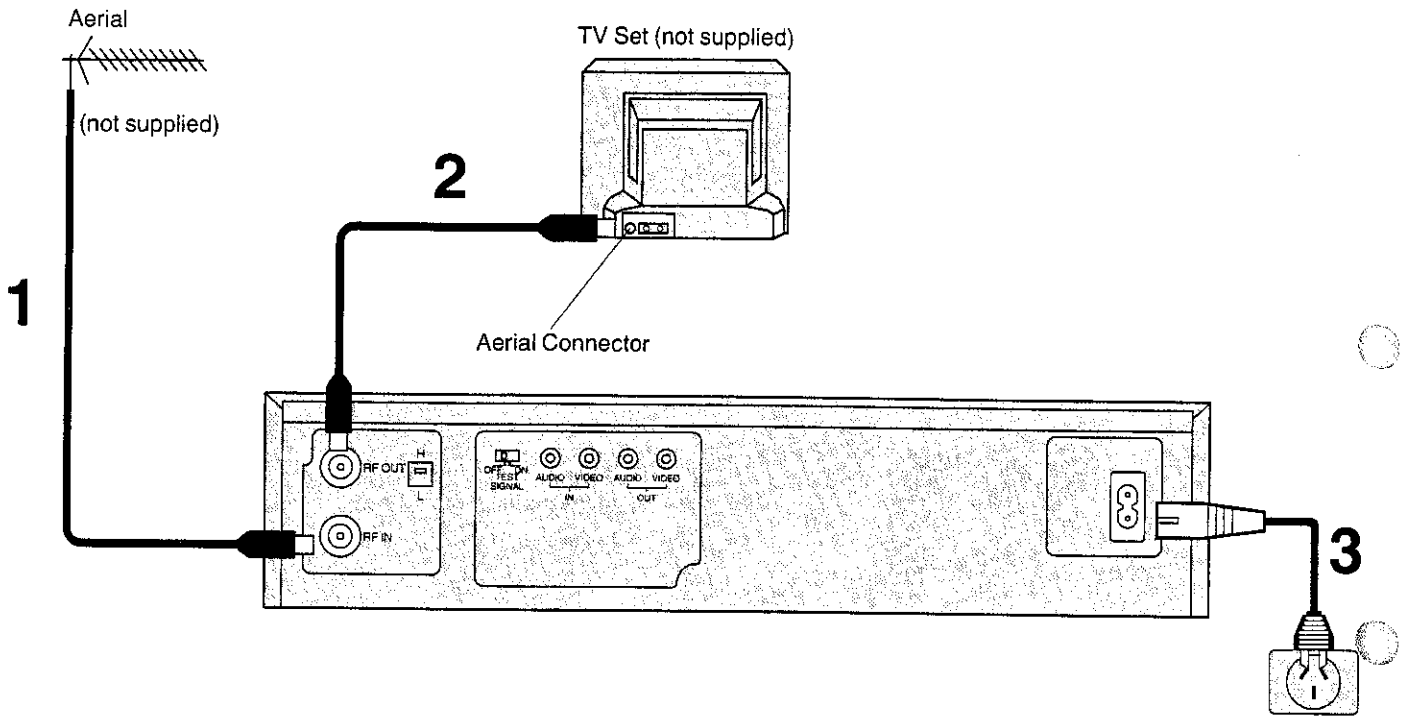
Setting the Clock of the VTR

The built-in clock is used to activate the timer for automatic recording and must be set to the correct time.

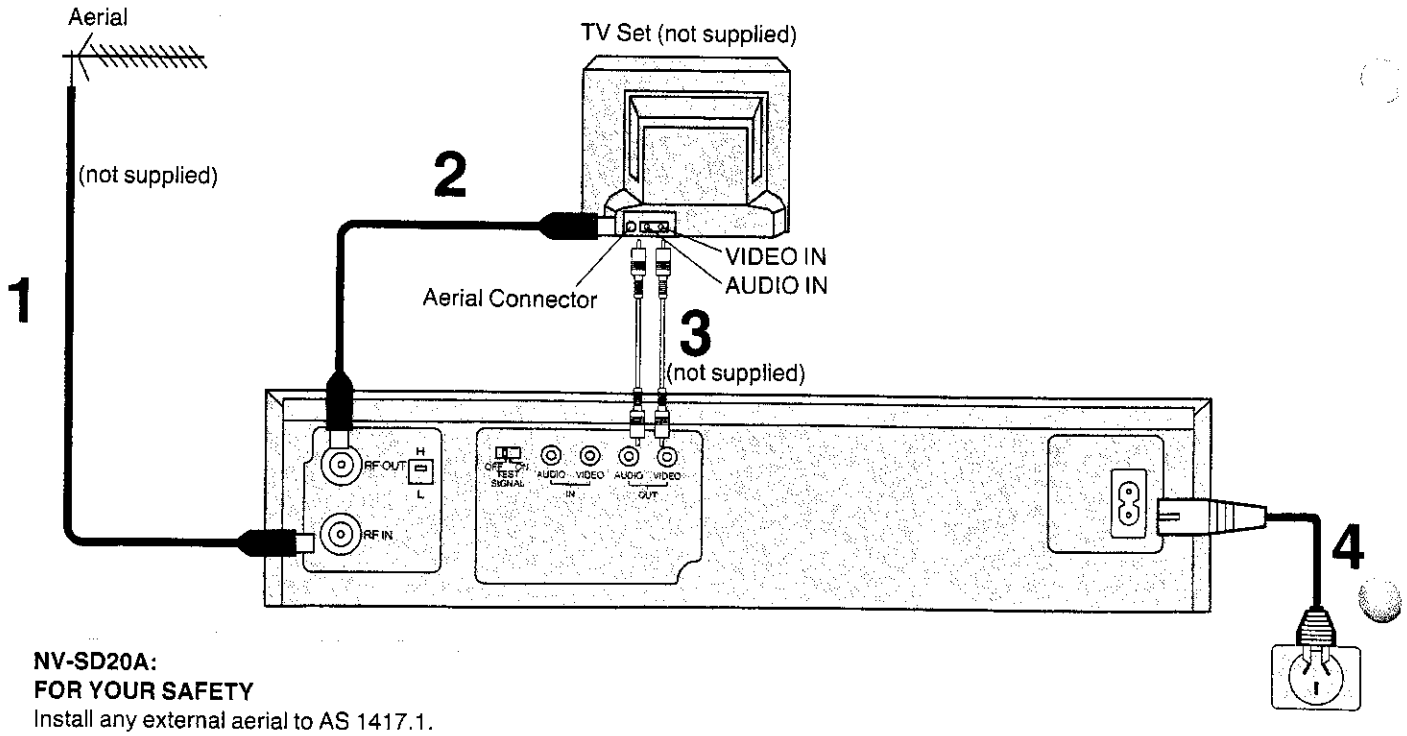
Connections

Basic Connections

The following connections are required to record and play back the VTR through a TV set:

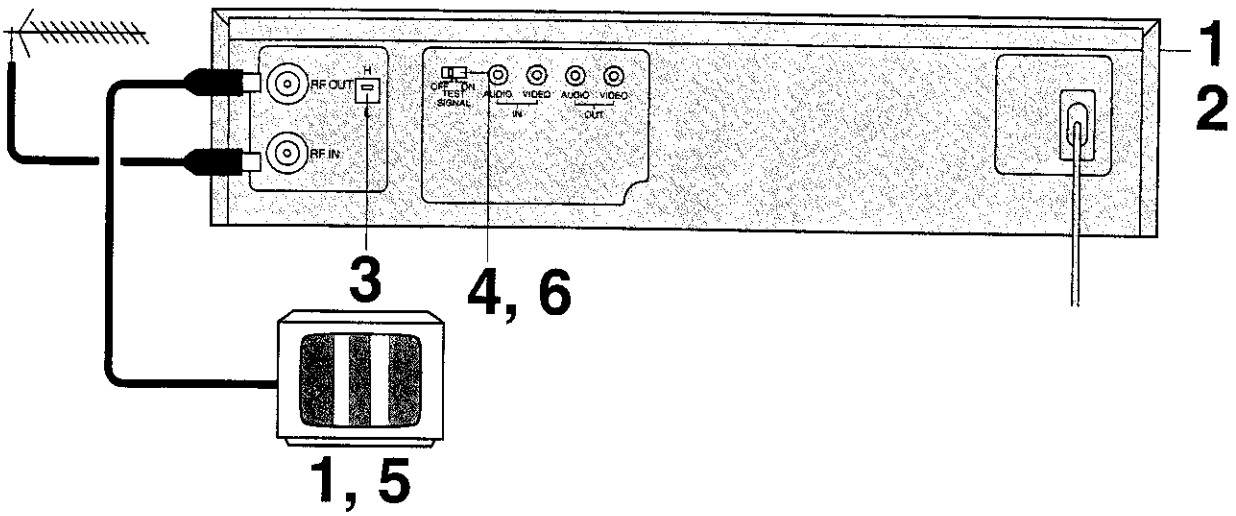


Connection to a TV Set with the Audio/Video Input Sockets



NV-SD20A:
FOR YOUR SAFETY
Install any external aerial to AS 1417.1.

Tuning the TV to your VTR

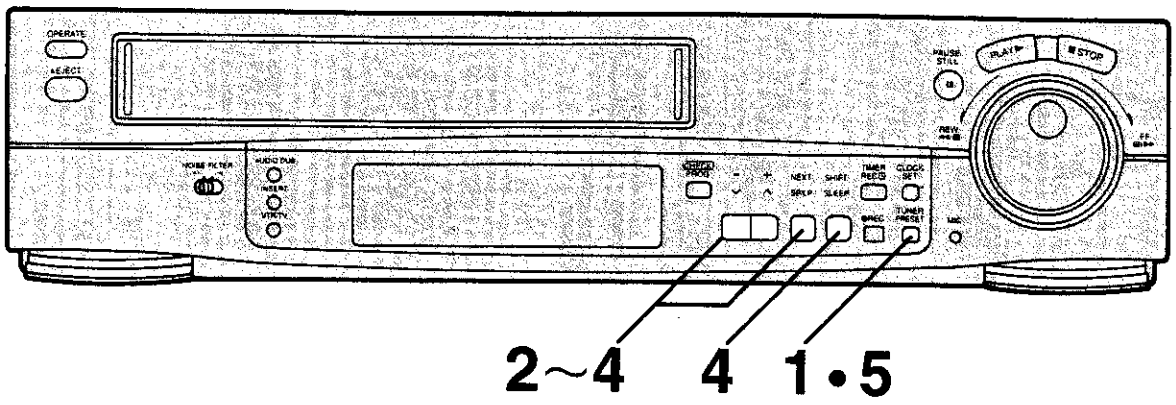


It is possible to view the video picture on your TV in the same way that you watch TV broadcasts.

If you have connected the VTR to the TV through the video and audio input sockets then you do not need to follow the procedure mentioned below.

Operations	Display Symbols	
1	OPERATE	Turn on the TV and VTR.
2	VTR/TV	Select the VTR mode.
3	H L	Select the video playback channel which is not occupied with any TV station. NV-SD20A: L (channel 0) or H (channel 1) NV-SD20EA: L (channel 2) or H (channel 3)
4	OFF ON TEST SIGNAL	To generate a test pattern, set **TEST SIGNAL** to ON.
5		Set the TV to an unused position which you wish to use for your video playback. NV-SD20A: L (channel 0) or H (channel 1) NV-SD20EA: L (channel 2) or H (channel 3) •NV-SD20A only In some areas channel 0 may be used by local TV station. In this case switch to channel 1.
6	OFF ON TEST SIGNAL	Set **TEST SIGNAL** to OFF.

Storing TV Broadcasts into your VTR



Introduction

The VTR is fitted with its own tuner (just like a normal TV set) and can be pre-set to receive up to 99 TV broadcast stations.

Preparation

- Confirm that the TV is on and the VTR viewing channel is selected.
- Turn on the VTR and press **VTR/TV** to select the VTR mode.
- Select the programme position except A1.

Operations	Display Symbols	
1 TUNER PRESET		Keep **TUNER PRESET** pressed until a bleep sound is heard.
2 – + NEXT		Select the programme position, then press **NEXT**.
3 + NEXT		Select TV band "I", "III" or "U", then press **NEXT**.
4 – + SHIFT		Search for the required TV station by pressing and holding + or –. Release once the station has been found.
5 TUNER PRESET		Press **TUNER PRESET** twice.

- Search speed changes quickly by pressing **SHIFT** simultaneously with + or –.
- Press **NEXT** and repeat steps 2–4 for each programme position you want to tune to a station.

Fine Tuning Procedure

1 Press **TUNER PRESET** until a bleep sound is heard, and then press again.

2 Press **NEXT**.

3 Press + or − to obtain the best tuning condition.
- "AFC" Indicator disappears.
- To return the tuning to its former state, press **SHIFT**.

4 Press **TUNER PRESET**.

Blanking of Unoccupied Programme Positions

1 Press **TUNER PRESET** until a bleep sound is heard.

2 Select a programme position which you do not want to tune to a TV station, by using + or −.

3 Press **SHIFT**. ("−−" is displayed.)
- Repeat steps 2 and 3 for other unoccupied programme positions to skip during the selection of the programme positions.
- To cancel the blanking of a programme position, select that programme position on the VTR and then press **SHIFT**.

4 Press **TUNER PRESET** twice.

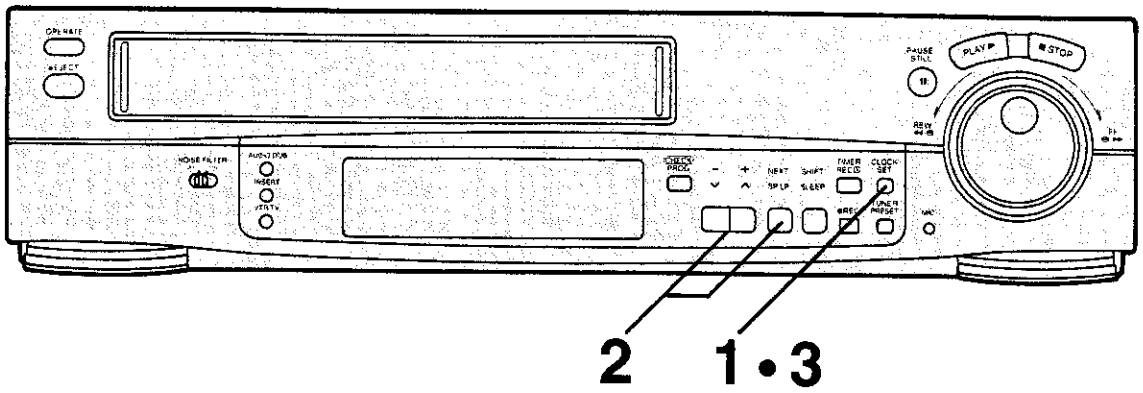
PRE-PROGRAMMED TV CHANNELS (NV-SD20A)
The local TV transmission channels 2, 7, 9 and 10 are factory-preset in this VTR. That is, if you can receive television broadcasts on VHF channels 2, 7, 9 and 10, these are already tuned on the programme positions with the matching numbers.
However, it is possible to cancel these presettings and tune the local TV broadcast channels on any desired programme positions.
For alternative settings and tuning of additional TV broadcasts channels, follow the Tuning Operations.

Deletes channels
Reset by pushing shift again.

Channel Plan

	VHF		UHF
	I	III	U
NV-SD20A	0–5	5A–11	21–69
NV-SD20EA	1–3	4–11	21–69

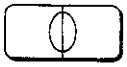
Setting the Clock of the VTR



The built-in digital clock employs the 24-hour system.

Preparation
Turn on the VTR.

For Example:
Date; 16th, October, 1999
Time; 20:15

Operations		Display Symbols	
1	CLOCK SET		Keep **CLOCK SET** pressed until a bleep sound is heard.
2	Set each item by pressing + or – and **NEXT**.		
	– +		Set **Year** "99".
			Set **Month** "10".
			Set **Date** "16".
	NEXT		Set **Hour** "20".
			Set **Minute** "15". • There is no need to press **NEXT**.
3	CLOCK SET		Press **CLOCK SET**. • The clock will start.

Note:
The clock operates for at least 60 minutes by its backup system in the event of power failure.

Time reset function
XX:00.00 can be set by performing the operation steps 1 and 3 during XX:58.00–XX:01.59.

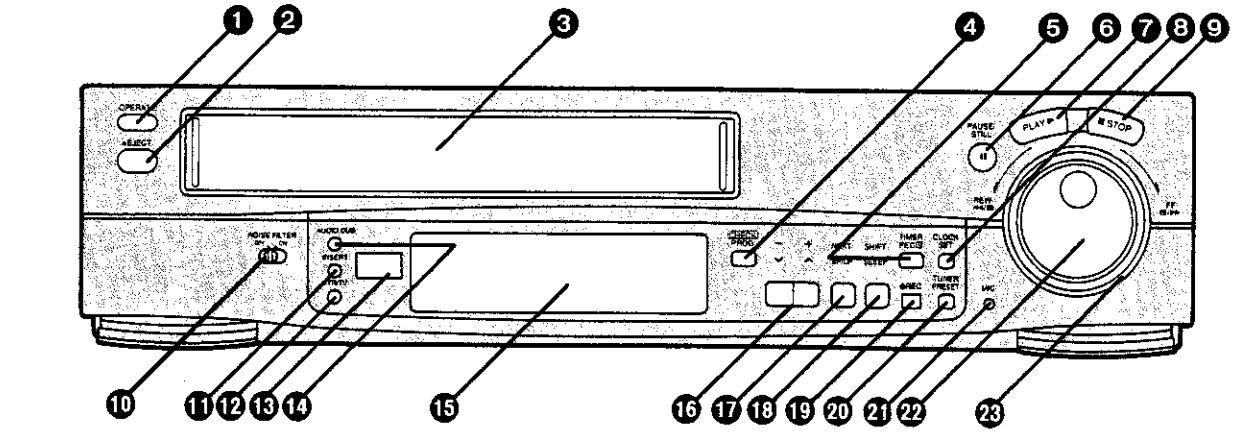
Description

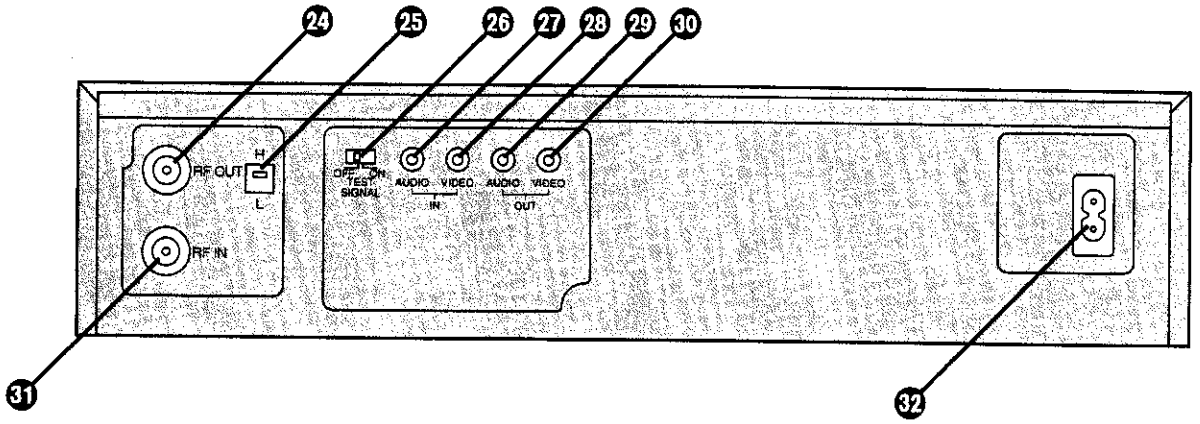
Controls and Connection Sockets

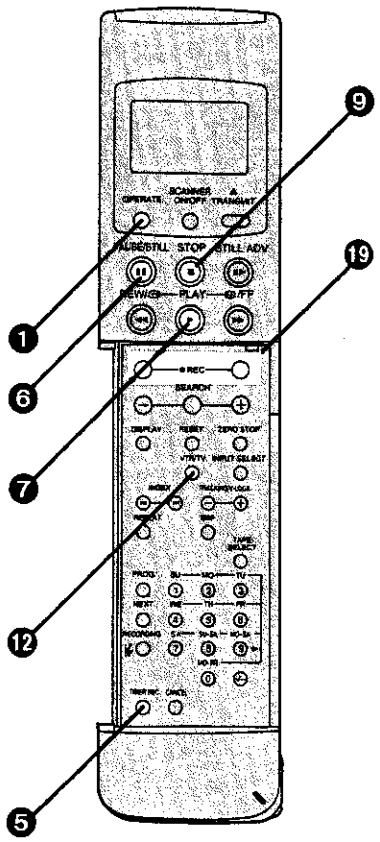
This gives a detailed explanation of the function of each button, switch and connection socket.

Infra-red Remote Controller

Controls and Connection Sockets







1 OPERATE
To turn the VTR on and off.

2 EJECT
To eject a video cassette.

3 Cassette Compartment
Insert a video cassette here.

4 CHECK/PROG
To select a timer programme number.
"1, 2, 3... or 8" is lit.
To display details of preset timer recording.

5 TIMER REC
To turn the timer recording function on and off.
⏲ is lit or not lit.
The VTR can only be operated manually when the timer recording function is off.

6 PAUSE/STILL
During playback: Still picture.
During recording: To interrupt recording.

7 PLAY
To start playback. "▷" is lit.

8 CLOCK SET
To set the time.

9 STOP
To stop any playback or recording.

⑩ **NOISE FILTER**
OFF: For normal VTR operation.
ON: For playback of a cassette whose recording quality is inferior.

⑪ **INSERT**
To set up the VTR for insert editing.
INSERT indicator lights up.

⑫ **VTR/TV**
To select the VTR mode or TV mode.

⑬ **Infra-red Remote Control Receiver Window**

⑭ **AUDIO DUB**
To set up the VTR for audio dubbing.
A.DUB indicator lights up.

⑮ **Display**

⑯ ∨ ∧/− +
To select the required programme position (TV station).
To set the clock and timer recording.

⑰ **NEXT/SP/LP**
To proceed to the next item during setting procedure.
To select the tape speed required for recording.
SP gives the best picture quality.
LP gives the longest recording time.

⑱ **SLEEP/SHIFT**
To set the time to turn off the VTR automatically.
To blank unoccupied programme position.

⑲ **REC**
To start a recording.

⑳ **TUNER PRESET**
To initiate TV station settings for the tuner.

㉑ **MIC**
To connect a microphone for recording.

㉒ **Jog Dial**
To locate any desired frame with utmost precision.

㉓ **Shuttle Ring**
In the stop mode: To rewind or fast forward the tape.
In the playback, mode:
To search picture backward or forward.
In the still playback mode:
To adjust playback speed backward or forward.
In the rewind or fast forward mode:
To obtain high speed picture.

㉔ **RF OUT**
To connect to the aerial terminal on a TV set.

㉕ **Video Playback Channel Selector**
To select the video playback channel.

㉖ **TEST SIGNAL**
The test signal is transmitted on channel L or H.

㉗ **AUDIO IN**
To connect an audio cable to a video camera or another video recorder.

㉘ **VIDEO IN**
To connect a video cable to a video camera or another video recorder.

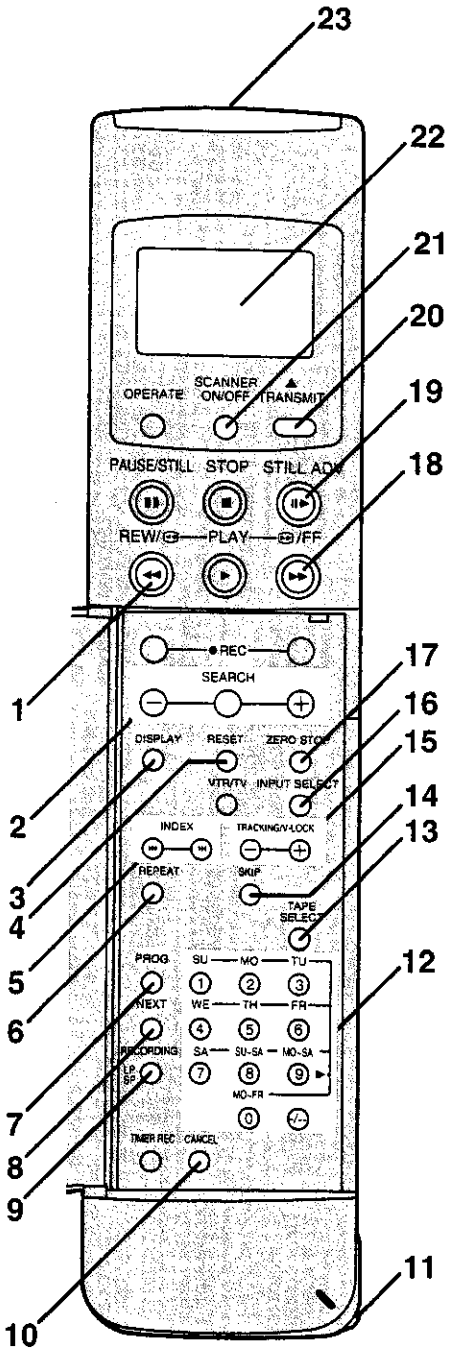
㉙ **AUDIO OUT**
To connect an audio cable to a TV or another video recorder.

㉚ **VIDEO OUT**
To connect a video cable to a TV or another video recorder.

㉛ **RF IN**
To connect to the external aerial.

㉜ **AC IN~**
To connect to the main power supply.

Infra-red Remote Controller



1 REW (REWIND)

In the stop mode:	To rewind the tape.
In the playback mode:	To search backward.
In the rewind mode:	To obtain high speed picture.

"◁◁" is lit.

2 SEARCH

To adjust the playback speed backward or forward.

3 DISPLAY

To change the indication on the VTR Display.

↱Clock→Counter→Remaining Tape Time ┐

4 RESET

To reset the tape counter (elapsed time) to "0:00.00".

- The tape counter is automatically reset to "0:00.00" when a video cassette is inserted.

5 INDEX

For the index search function.

6 REPEAT

For the repeat playback function.

7 PROG

For timer recording by using the remote controller.

8 NEXT

To proceed to the next item during setting procedure.

9 RECORDING SP/LP

To select the tape speed desired for recording.

10 CANCEL

To cancel the settings made for a timer recording.

11 Bar Code Reading Section

After the Bar Code Reader is turned on, the tip lights in red.

12 Programme Position Selector Buttons

- To select the programme positions.

MO-SA

9: (9)▸

SU MO-SA

19: (-/--) → (1) → (9)▸

- To programme a timer recording.

13 TAPE SELECT

To set the cassette tape length in order to obtain correct indication of the remaining tape time.

E195: For E30, -60, -80, -120, -180 and -195 tapes.
E240: For E240 tape.
E260: For E260 tape.

14 SKIP

To start cue playback in 30 seconds interval during playback.

- Each press gives a 30 seconds time span up to 4 minutes.

15 TRACKING/V-LOCK

For manual tracking adjustment
The + and – buttons are used to adjust the tracking when, for example, noise bars on the picture are better removed manually than by the automatic digital tracking control. After making a manual adjustment, press both buttons together to return to automatic digital tracking control.

For slow tracking adjustment
When noise bars appear during Still, Still Advance or Slow playback, switch over to slow playback and adjust with the "+" or "–" Button to reduce the noise bars.

For vertical locking adjustment
Use the + and – buttons to minimize any vertical jitter during still-picture playback.

16 INPUT SELECT

To select the "A1" external recording source.

17 ZERO STOP

For the zero stop function.

18 FF (FAST FORWARD)

In the stop mode: To fast forward the tape.
In the playback mode: To search forward.
In the fast forward mode: To obtain high speed picture.
"▷▷" is lit.

19 STILL ADV

To advance a still picture during still playback.

20 TRANSMIT

To transmit the data that has been set on the remote controller to the VTR.

21 SCANNER ON/OFF

To turn the Bar Code Reader on and off.

22 Display

23 Infra-red Transmitter

The programming data are transmitted from here to the VTR.

Power source for the remote controller

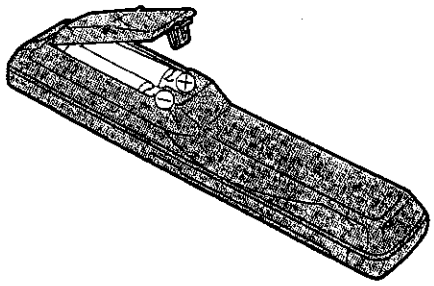
The remote controller is powered by 2 "AA", "UM3" or "R6" size batteries. The life of the batteries is about one year, although this depends on the frequency of use.

- If the display flickers when a button on the remote controller is pressed, please replace the batteries with new ones.

Precautions for battery replacement

- Load the new batteries with their polarity (+ and –) aligned correctly.
- Do not apply heat to the batteries, or an internal short-circuit may occur.
- If you do not intend to use the remote controller for a long period of time, remove the batteries and store them in a cool and dry place.
- Remove spent batteries immediately and dispose of them.
- Do not use an old and a new battery together, and never use an alkaline battery with a manganese battery.

Loading the batteries



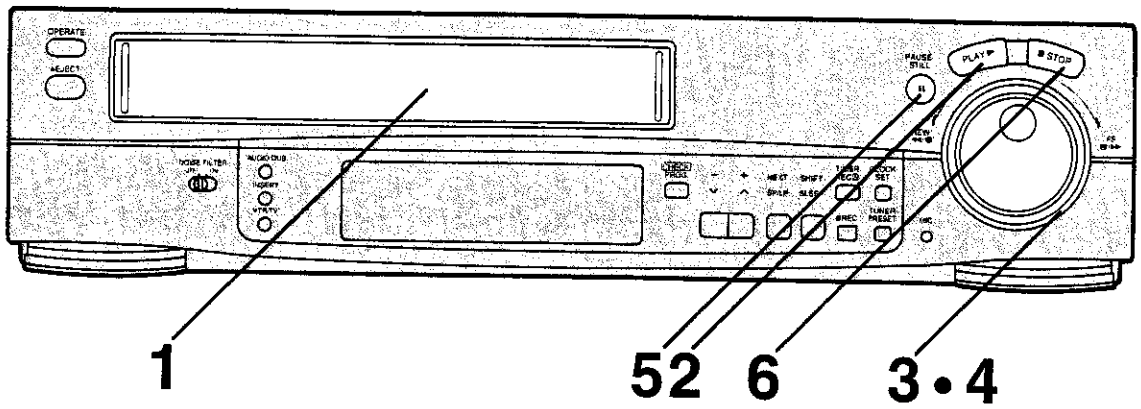
Basic Operations

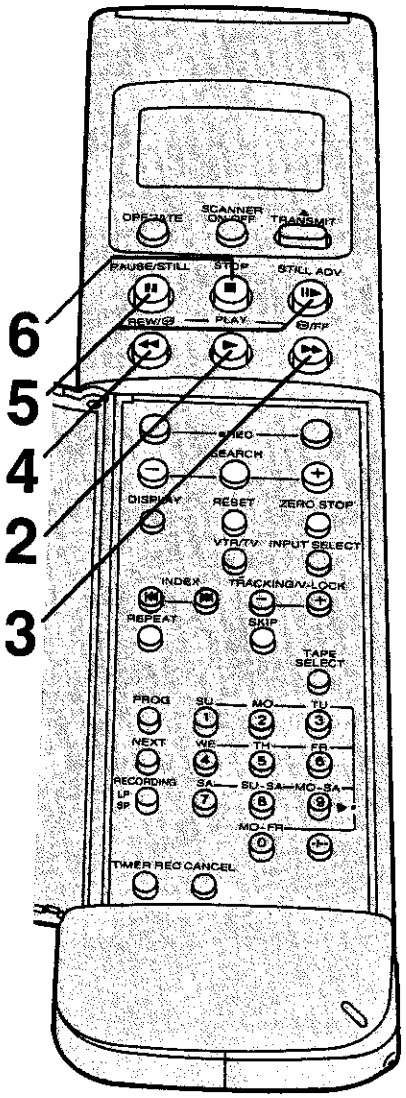
Playback

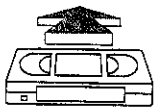
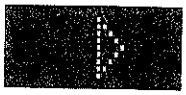
On-the-spot Recording

Other Functions

Playback





Operations	Display Symbols	
1 		Insert a recorded cassette tape.
2 PLAY		Start viewing the picture.
3		Search forward by tapping **FF**. •To change back to normal playback, press **PLAY**.
4 REW/		Search backward by tapping **REW**. •To change back to normal playback, press **PLAY**.
5 PAUSE/STILL STILL ADV		View a still picture. •To advance one frame of the still picture, press **STILL ADV**. •To continue the normal playback, press **PLAY** or **PAUSE/STILL** again.
6 STOP		Stop viewing the picture.

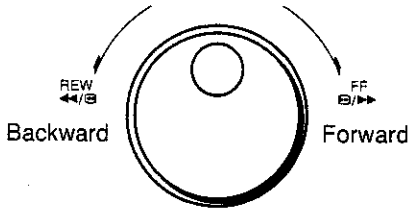
Other Playback Functions

To change the playback speed

Using Shuttle Ring:

1 Press **PAUSE/STILL**.

2 Rotate Shuttle Ring.



Using Remote Controller:

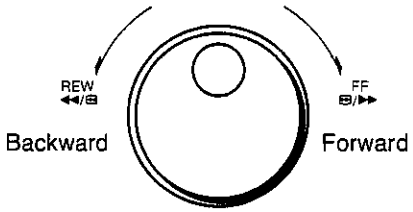
1 Press **SEARCH**.

2 Press + or − repeatedly.
+: To increase the playback speed forward.
−: To increase the playback speed backward.

To locate the desired picture exactly

1 Press **PAUSE/STILL**.

2 Turn Jog Dial.



To obtain high speed picture during fast forward or rewind

Keep **FF** pressed during fast forward.
Keep **REW** pressed during rewind.

- The same operation can also be performed by turning the Shuttle Ring.

To skip scene

Press **SKIP** during playback.

- The following 30 seconds will be skipped.
- Each press gives a 30 seconds time span up to 4 minutes.

To return to a specified scene

1 Press **RESET** to set the counter to 0:00.00.

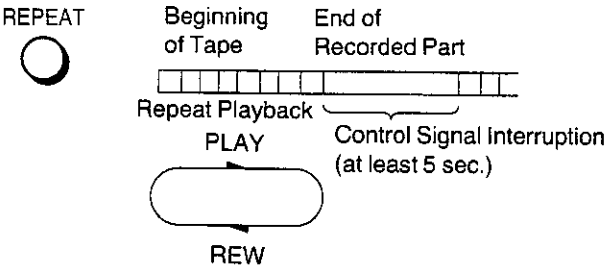
2 Press **STOP** after playback, fast forward or rewind.

3 Press **ZERO STOP**.

- The tape will be rewound or fast forwarded to 0:00.00.

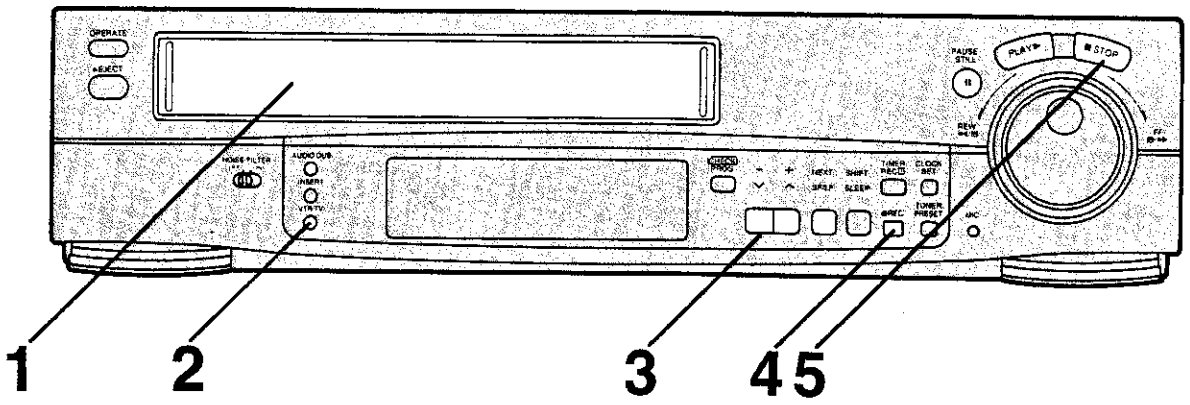
To playback a recorded part repeatedly

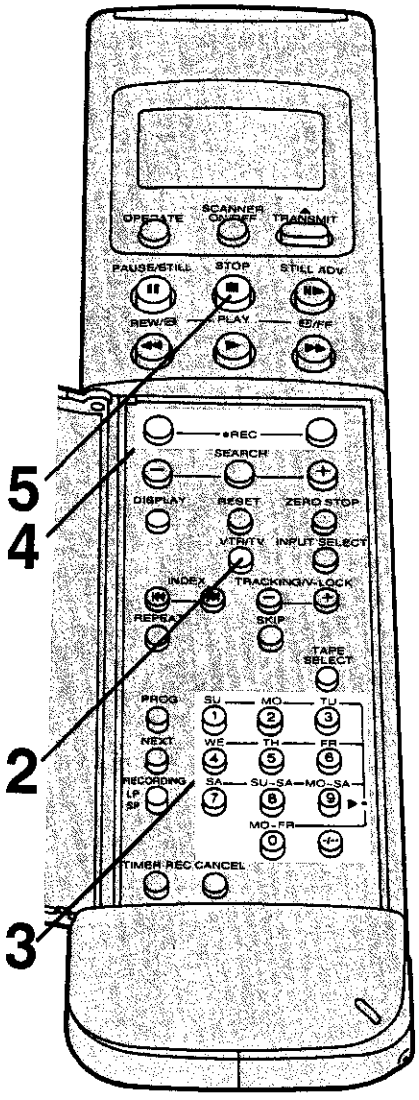
Press **REPEAT** in the stop mode.

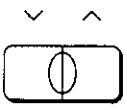
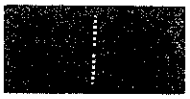
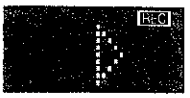


Note:
Cue, review or slow playback will be automatically released after 10 minutes, and still playback after 5 minutes.

On-the-spot Recording





Operations	Display Symbols	
1		Insert a cassette tape. • If it has already been inserted, press **OPERATE** to turn the VTR on.
2 VTR/TV		Select the VTR mode.
3 		Select TV station.
4 ●REC		Start recording.
5		Stop recording.

To select the desired tape speed

Press **SP/LP** before recording.

To interrupt recording

Press **PAUSE/STILL** during recording.
Press again to continue recording.

To record one TV programme while viewing another programme

1 Refer to the on-the-spot recording operations steps 1 to 4.
2 Press **VTR/TV** to select the TV mode.
3 Select the TV programme on your TV set you wish to view at the present time.

To display the approximate remaining tape time

1 Press **TAPE SELECT** to select the corresponding cassette tape length.

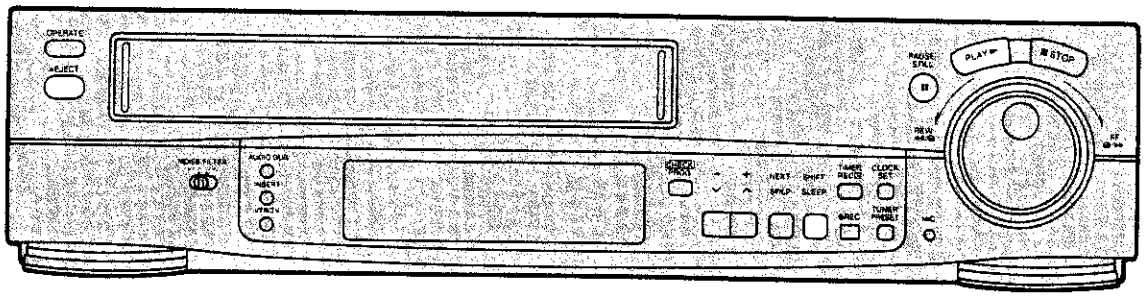
E195: For E30, -60, -80, -120, -180 and -195 tapes.
E240: For E240 tape.
E260: For E260 tape.

2 Press **DISPLAY**.

Notes:

- When a video cassette with a broken off tab is inserted, the "CC" indication will flash to indicate that recording is not possible.
- The recording pause mode will be automatically released after 5 minutes.

Other Functions



Automatic VTR off time setting

Press **SLEEP** for the desired time.

SLEEP

- Each press gives a 30 minutes time span up to 9 hours.
- To cancel the setting time, press **SLEEP** repeatedly to set 0:00.

NTSC Playback

Tapes recorded in the NTSC system can be played back with this VTR via a PAL system TV set.

A note about NTSC playback on PAL TV function

On some TVs, the playback picture may roll up or down: adjust this using the V-HOLD control on the TV. TVs not equipped with a V-HOLD control cannot correct this condition. The playback picture will shrink vertically, and black bars will appear both on the top and bottom of the screen. This is not an indication of a malfunction.

- During Cue, Review, Still or Slow playback, the picture may not be in colour.
- Recording in the NTSC system is not possible with this VTR.
- This function is designed only to allow the playback of tapes recorded by NTSC signals on a PAL system TV. The NTSC signal is not completely converted to a PAL signal. For this reason, images played back by this function cannot be recorded on another VTR.
- When playing back a tape recorded in the NTSC system SLP mode, the "LP" indication will light up in the Display.

Other Automatic Functions

Automatic playback

When a cassette without an erasure prevention tab is inserted, the VTR starts playback automatically.

VTR-off playback

When the VTR is off, an inserted cassette can be played back by pressing **PLAY**.

Automatic rewinding

When the tape reaches its end during recording (except for timer recording) or playback, it will automatically be rewound to the beginning.

Automatic switching off and ejection

When the VTR is switched off, an inserted cassette can be ejected simply by pressing **EJECT**. The VTR will eject the cassette and automatically turn itself off again.

Advanced Operations

Timer Recording

Up to 8 programmes can be recorded up to one month in advance by setting the timer, including daily and weekly programmes.

Search Function

VHS Index Search System
With this system it is very easy to find the beginning of each recorded programme (in both forward and reverse directions). Up to 20 programmes (where index signals have been recorded) may be searched.

Editing

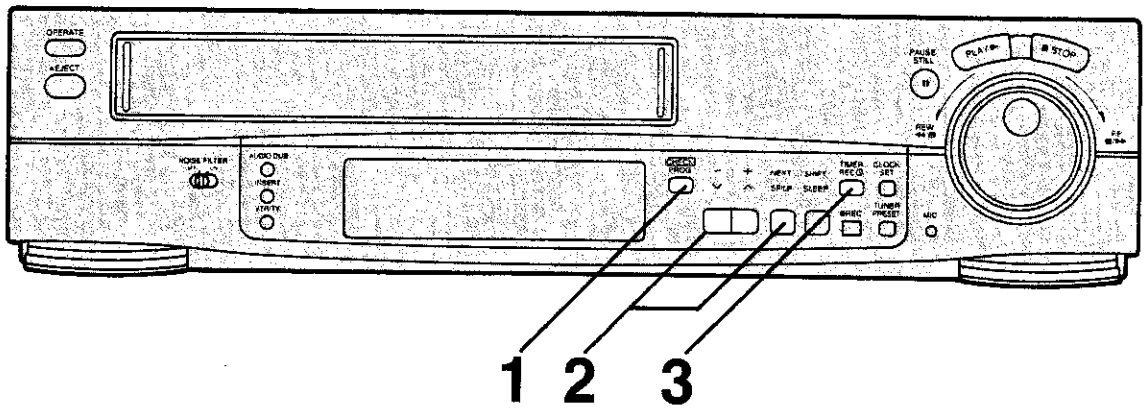
Assembly Editing
This enables you to record a new segment immediately after a previously recorded segment.

Insert Editing
This editing method allows a new recorded segment to be inserted into an existing recording to replace an existing segment of the same length.

Audio Dubbing
This enables you to record new sound on a previously recorded tape.

Bar Code Operation

Timer Recording

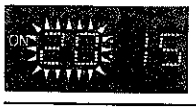
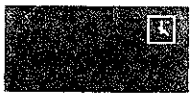


Preparation

- Insert a cassette tape with an intact erasure prevention tab.

For Example:

Timer Programme number;	1
Programme position (channel);	2
Date;	27th, October
Starting time;	20:02
Ending time;	21:30
(present date; 16th October)	

Operations		Display Symbols	
1	CHECK PROG		Select **Timer Programme number** "1".
2	Set each item by pressing + or − and **NEXT**.		
	− +		Set **Programme position** (channel) "2".
			Set **Date** "27". • For daily and weekly recording, see page 25.
			Set **Starting time** (hour) "20".
	NEXT		Set **Starting time** (minute) "02".
			Set **Ending time** (hour) "21".
			Set **Ending time** (minute) "30". • There is no need to press **NEXT**.
3	TIMER REC		To activate timer recording, press **TIMER REC**.

Setting for Daily and Weekly Timer Recording

In the Date setting step, press – repeatedly until the desired day(days) is displayed.

Daily recording
From Sunday to Saturday

From Monday to Saturday

From Monday to Friday

Weekly recording
For example, Sunday

Timer Recording from External Signal Source

If Timer Recording is performed by a unit connected to the Audio/Video input sockets, select the A1 indicator for the programme position.

Selecting the Desired Tape Speed

After step 2, press **NEXT** and select SP or LP by pressing + or –.

Setting other Programmes in Succession

Repeat steps 1 and 2.

Checking a Timer Programme

Select the timer programme number to be checked by pressing **CHECK/PROG**.

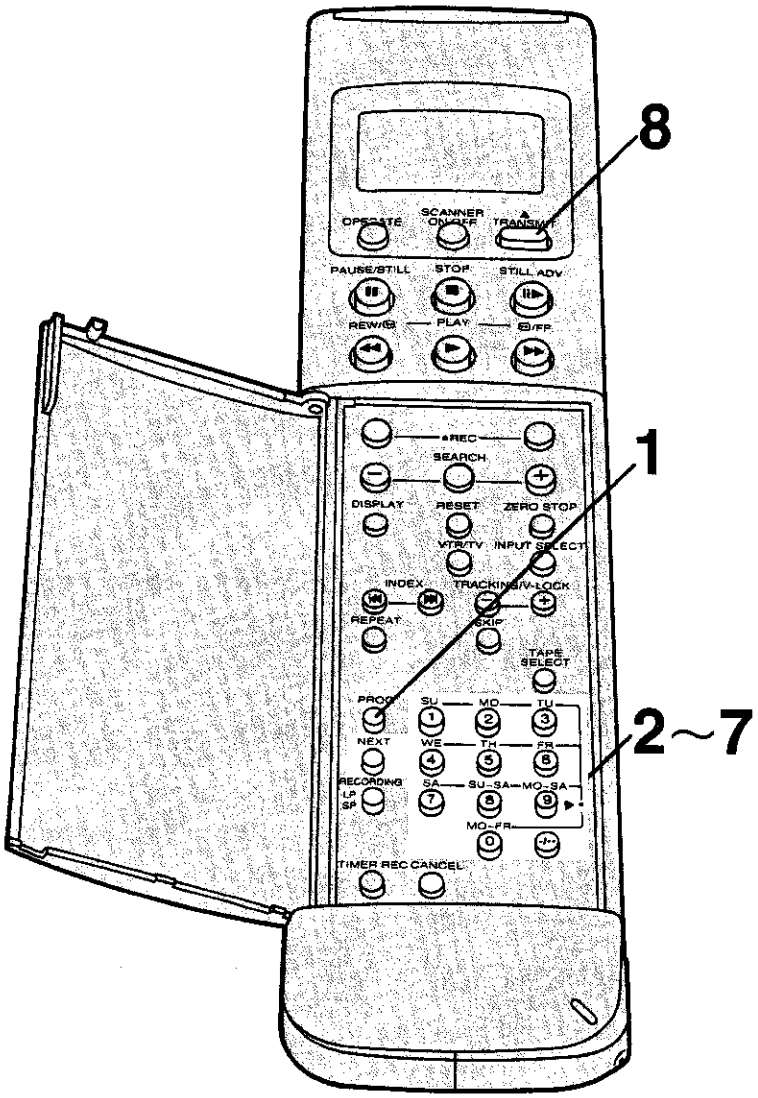
Cancelling a Timer Programme

1 Release from the standby mode by pressing **TIMER REC**.

2 Select the timer programme number to be canceled by pressing **CHECK/PROG**.

3 Press + and – simultaneously for more than 3 seconds.

Using the Remote Controller



For Example:

Programme position (channel); 27
Date; 3rd. November
Starting time; 20:02
Ending time; 21:30
(Present date; 16th, October)

Note:
If no operation is performed on the remote controller for more than 60 seconds, the Display turns off.

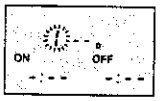
Preparation

Insert a cassette tape with an intact erasure prevention tab.

Operations

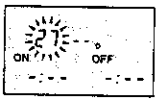
1 Press **PROG.**

PROG



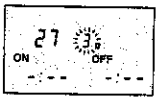
2 Enter **Programme position** "27", then press NEXT.

MO SA NEXT



3 Enter **Date** "3", then press **NEXT.**

MO-FR TU NEXT

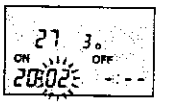


4 Enter **Starting time** (hour) "20", then press **NEXT.**

MO MO-FR NEXT

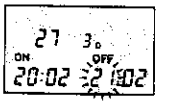
5 Enter **Starting time** (minute) "02", then press **NEXT.**

MO-FR MO NEXT



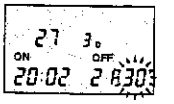
6 Enter **Ending time** (hour) "21", then press **NEXT.**

MO SU NEXT



7 Enter **Ending time** (minute) "30".

TU MO-FR



8 Press **TRANSMIT.**

▲
TRANSMIT

The transmitted data appears on the display and a repeated bleep confirms the reception.

Daily Timer Recording

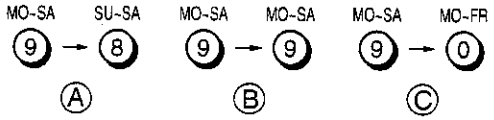
For this timer function, several groups of days can be selected.

Ⓐ Daily recording from Sunday to Saturday

Ⓑ Daily recording from Monday to Saturday

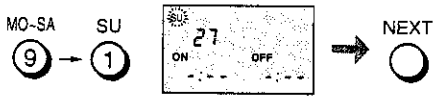
Ⓒ Daily recording from Monday to Friday

Press the following numeric button within 5 seconds to select the group of days in step 3.



Weekly Timer Recording

Press the 9 button and then the numeric button within 5 seconds in step 3.
For example, SU (Sunday)



Timer Recording from External Signal Source

If Timer Recording is performed by a unit connected to the Audio/Video input sockets, press **INPUT SELECT** to select the A1 indicator for the programme position.

Selecting the Desired Tape Speed

Press **RECORDING SP/LP** in any of step 2~7.

Checking a Timer Programme

- The VTR must be turned on, or the timer recording indicator "⏲" is lit.
- Make sure that the display of the Remote Controller is not on.

Press **TRANSMIT** repeatedly until the desired timer programme number is displayed.

Cancelling a Timer Programme

1 Press **TRANSMIT** repeatedly until the desired timer programme number is displayed.

2 Press **CANCEL**.

Search Function

VHS Index Search System

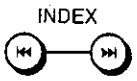
Preparation
Insert a recorded cassette tape with index signals.

For example:
Searching for the 2nd recorded segment in the forward direction.

Operations

Press **INDEX ▶▶I** twice.

INDEX

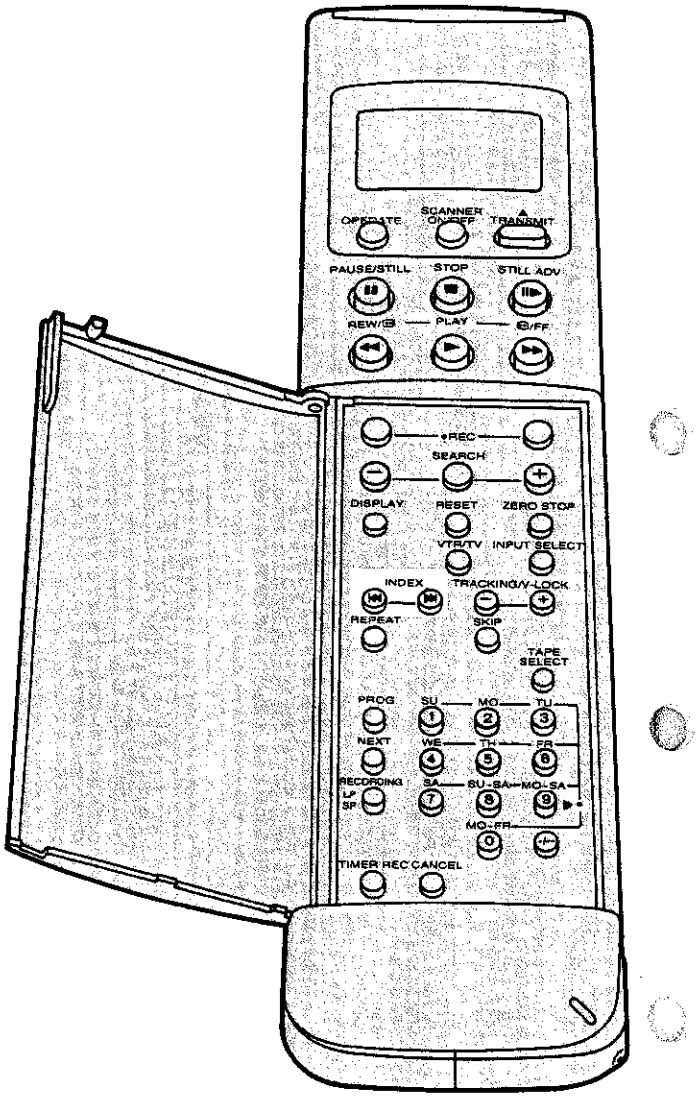


Display Simbols

- After finding the specific recorded segment, playback starts automatically.
- For the reverse direction, press **INDEX I◀◀**.

Recording Index Signals
Index signals are recorded in following cases.
WRITE indicator appears on the Display.
- When a recording is started by pressing **REC**.
- When **REC** is pressed during recording.
- When timer recording is activated.

Note:
The search function can only work correctly, if the index signals are spaced at least 3 minutes apart in the SP mode and 5 minutes apart in the LP mode.

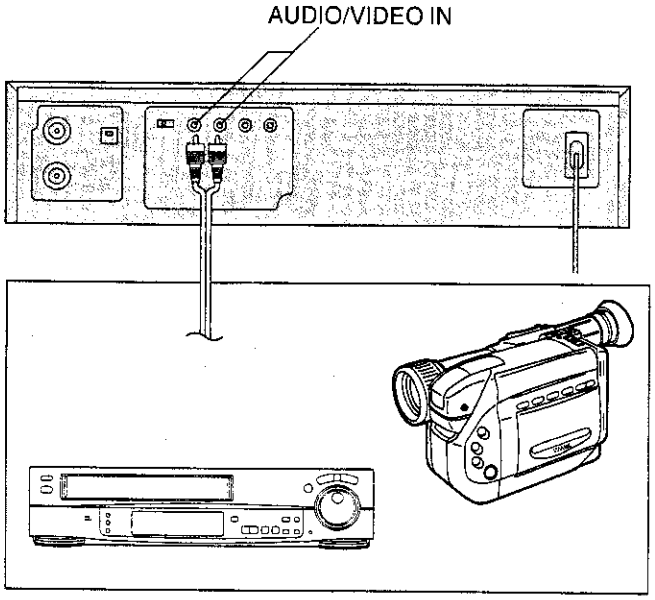


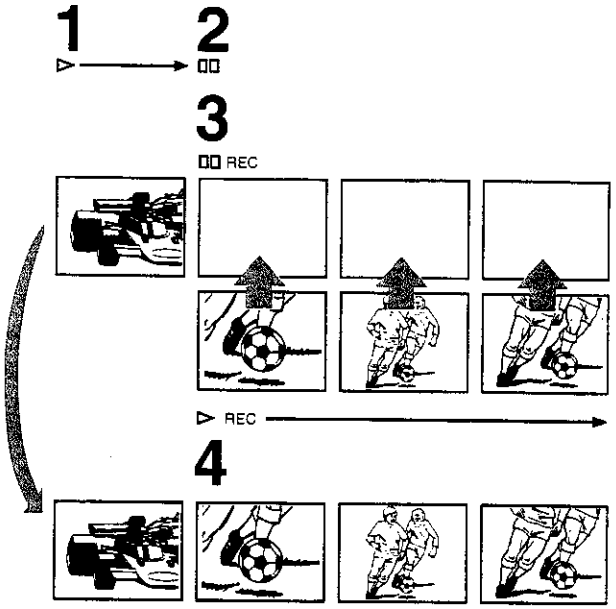
Editing

Assembly Editing

This function can be used to make up an edited tape from other recordings or video sources.

A new scene can be added to the end of a previous one.





Preparation

- Connect a movie camera or another VTR to this VTR as shown.
- Insert a recorded cassette tape with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1.

Operations

1 Search for the end of the previous recording.

2 Press **PAUSE/STILL** at the end point.

3 Set for the new recording by pressing **REC**.

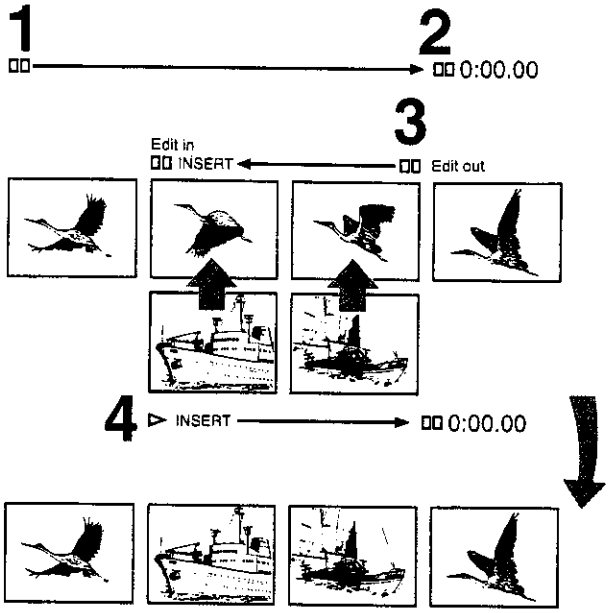
4 Start the new recording by pressing **PAUSE/STILL** again.

Insert Editing

This is used to substitute one scene for another providing.

Preparation

- Insert a recorded cassette with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1.



Operations	Display Symbols	
1 PAUSE/STILL		Press **PAUSE/STILL**.
2 REW FF RESET		Search for the Edit out (ending) point, and set the counter to 0:00.00 by pressing **RESET**.
3 REW FF INSERT		Search for the Edit in (starting) point, and press **INSERT**. • If you want to replace the sound too, press **AUDIO DUB** as well.
4 PAUSE/STILL		Start insert editing by pressing **PAUSE/STILL**. • The insert editing will finish when the counter reaches 0:00.00.

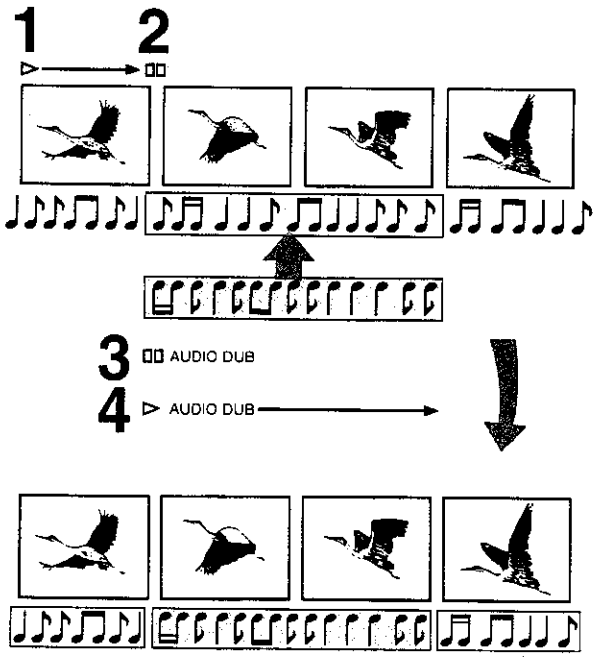
Note:
Insert Editing cannot be used on blank sections of a tape. In this case use Assembly Editing first.

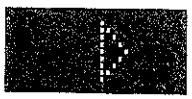
Audio Dubbing

This is used to add background music, narration, etc.

Preparation

- Insert a recorded cassette with an intact erasure prevention tab.
- Select the video source required by pressing **INPUT SELECT** to set A1.



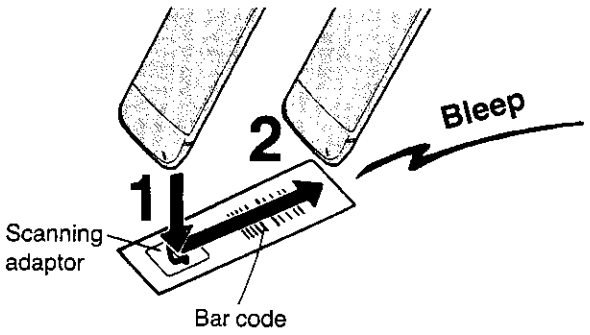
Operations		Display Symbols	
1	PLAY		Search for the starting point for audio dubbing.
2	PAUSE/STILL		Press **PAUSE/STILL** at the starting point.
3	AUDIO DUB		Set for audio dubbing by pressing **AUDIO DUB**.
4	PAUSE/STILL		Start recording the new sound by pressing **PAUSE/STILL**. • Stop recording by pressing **STOP**.

Bar Code Operation

Scanner Preparation

Operating the Remote Controller

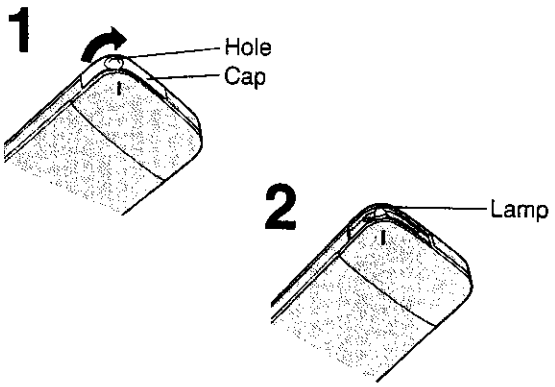
This remote controller also operates as a digital-scanning bar code reader.
Press **SCANNER ON/OFF** to turn it on.
If the remote controller is not operated within 60 seconds (within 4 minutes when setting the clock time), the lamp and Display turns off.
When the lamp is not lit, press **SCANNER ON/OFF** to turn it on again.



When the Bar Codes Cannot be Read

Although the lamp in the tip of the Bar Code Reading Section lights up:
- No figures appear in the Display
- No beep sounds is heard;

The tip of the Bar Code Reading Section is probably clogged with dirt.



Reading the bar codes

1 Fit the remote controller to the scanning adaptor.

2 Trace the bar code quickly in the direction of the arrow, ensuring that you trace it completely past the last bar.
- The "Bleep" sound indicates that the bar code has been read completely.

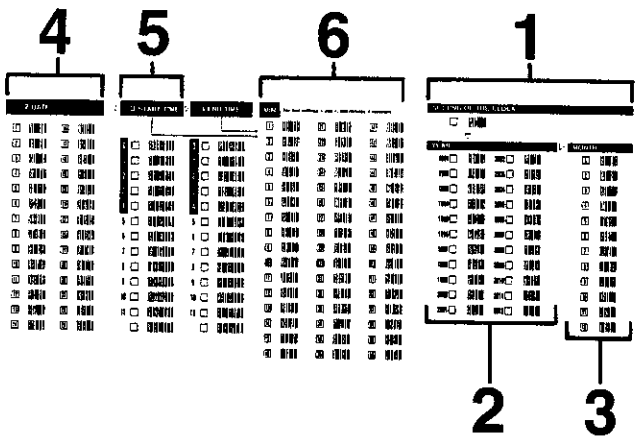
Cleaning

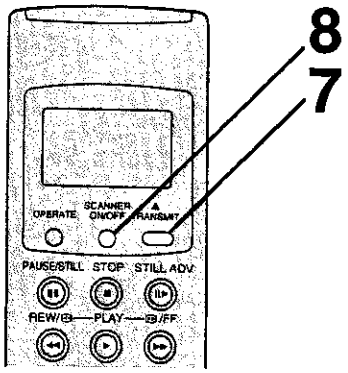
1 Remove the cap of the Bar Code Reading Section.
- Remove dirt and dust from the hole of the cap.

2 Gently wipe the tip of the lamp with a soft cloth.
- Reattach the cap by inserting it until it locks with a click.

Setting the Clock

Read in the following data successively by tracing bar codes 1 to 6 on the programming sheet.





Preparation

Turn on the VTR and the remote controller.

For Example:

Date; 16th, October 1999
Time; 20:15

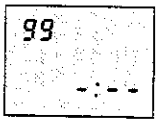
Operations

1 Trace the code for **SETTING OF THE CLOCK.**

SETTING OF THE CLOCK

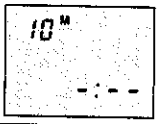
2 Trace the bar code **YEAR** "1999".

YEAR
1999



3 Trace the bar code **MONTH** "10".

MONTH
10



4 Trace the bar code **DATE** "16".

2 DATE
16

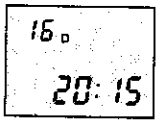
5 Trace the bar code for the hour **START TIME** "20".

3 START TIME
20

- The repeated bleep sound indicates correct bar code reading and readiness for transmitting the data to the VTR.

6 Trace the bar code for the minute **MIN** "15".

MIN
15



- The bleep sound will be heard again.

7 To transmit the data to the VTR, press **TRANSMIT** toward the VTR.

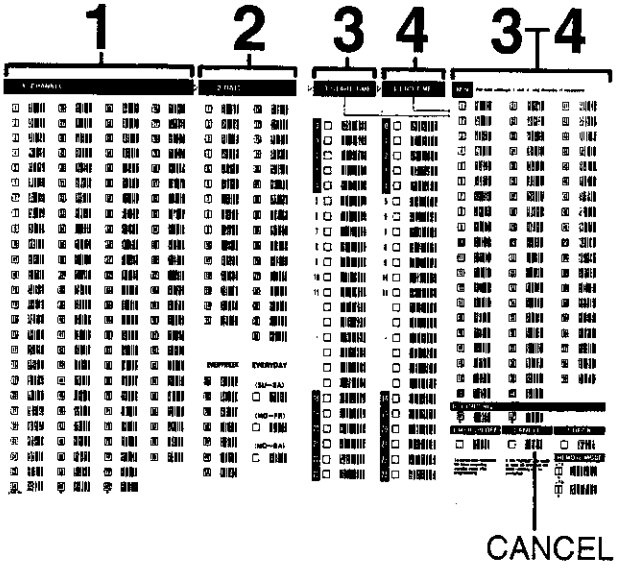
- The transmitted data appears on the display, and a bleep sound confirms proper reception.

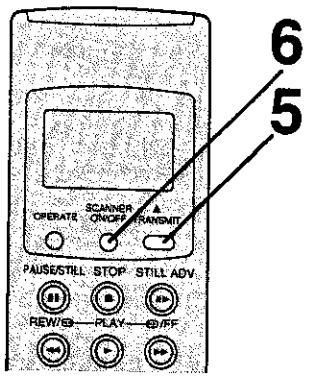
8 To turn off the remote controller, press **SCANNER ON/OFF.**

Timer Recording

Setting Timer Recordings from Bar Codes

Successively scan the data for the programme position (channel), day, starting time and ending time by tracing bar codes 1 to 4 on the programming sheet.





Preparation

Turn on the VTR and the remote controller.

For Example:

Programme position (channel); 4
Date; 3rd, November
Starting time; 20:02
Ending time; 21:30
(Present date; 16th, October)

Operations

1 Trace the bar code for **CHANNEL** "4".

2 Trace the bar code for **DATE** "3".

3 Set **Starting time.**

- Trace the bar code for **START TIME** "20".

- Trace the bar code for **MIN** "2".

4 Set **Ending time.**

- Trace the bar code for **END TIME** "21".

The repeated bleep sound indicates readiness for data transmission to the VTR.

- Trace the bar code for **MIN** "30".

The bleep sound will be heard again.

5 To transmit the data to the VTR, press **TRANSMIT** toward the VTR.

- The transmitted data appears on the display of the VTR and a bleep sound confirms proper reception.

Programming a Series Timer Recordings

Trace the CANCEL bar code.
Repeat the required steps 1 to 5 for each timer recording.

6 To turn off the remote controller, press **SCANNER ON/OFF**.

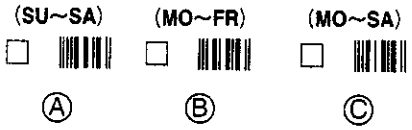
Daily Timer Recording

For this time setting, three day patterns can be selected:

Ⓐ Daily recording from Sunday to Saturday

Ⓑ Daily recording from Monday to Friday

Ⓒ Daily recording from Monday to Saturday



Weekly Timer Recording

Trace the bar code for the day of the week in the EVERYWEEK column.

For example, SU (Sunday)

Timer Recording from an External Signal Source

If a timer recording is to be made from a signal source that is connected to the Audio/Video input sockets, the "AV" bar code in the CHANNEL column must be traced for the programme.

Selecting the Desired Tape Speed

Trace the bar code for RECORDING "SP" or "LP".

Turning the Timer on and off

After programming a timer recording, the timer recording indicator "◷" lights up, and the VTR can no longer be used for normal recording and playback. To make it possible to use the VTR, trace the TIMER ON/OFF bar code and transmit to the VTR (the timer recording indicator "◷" will go out). To reactivate the timer again, trace the TIMER ON/OFF bar code again and transmit to the VTR (the "◷" indicator will light again).

Checking a Timer Programme

The VTR must be turned on, or the timer recording indicator "◷" is lit.

1 Trace the CHECK bar code.

2 Transmit the data to the VTR.
- To check the settings for the next timer recording, press **TRANSMIT**.

Cancelling a Timer Programme

The data for the timer recording must first be displayed.

1 Trace the CHECK bar code.

2 Transmit the data to the VTR.

3 Trace the CANCEL bar code.

4 Transmit the data to the VTR.

Helpful Hints

Before Requesting Service

Before requesting service, check the following points once again.

Specifications

Before Requesting Service

Before requesting service, check the following points once again.

VTR will not operate correctly			
SYMPTOM	**CAUSE**	**REMEDY**	**CHECKED**
VTR display is not illuminated.	Mains lead is not connected.	Reconnect mains lead to VTR.	
VTR display is illuminated but VTR will not operate when OPERATE is pressed.	VTR is in timer mode.	Press TIMER REC to operate VTR manually.	
	Safety devices are operating.	Disconnect mains lead and wait for 1 minute. Reconnect mains supply and check functions.	
VTR will operate for a few seconds then power off.	Tape is jammed in VTR.	If tape is jammed in VTR, do not attempt to remove, as this may cause damage. Consult your dealer for advice.	

Playback will not operate correctly			
SYMPTOM	**CAUSE**	**REMEDY**	**CHECKED**
Picture noisy or not in colour. Horizontal bars or lines run down the screen.	Tracking is not correct.	Although auto-tracking should ensure a good picture, it may be necessary to manually adjust tracking on some tapes not recorded on this VTR. See page 15.	
	TV set is not tuned to VTR.	Operate test switch on VTR and check TV tuning. See page 7.	
	Tape is recorded incorrectly.	Check that aerial is connected to VTR. See page 6.	
		Check that each programme position is tuned to the correct station. A snowy picture on one or more programmes may indicate that VTR is tuned to weak station or wrong transmitter. Re-tune if necessary. See page 8.	
	Video heads are clogged or worn.	Condensation may have formed, or a faulty tape has been used. See page 4. Do not operate VTR for 1 hour, then insert a new tape (the original may be faulty) and play back for a few minutes. If fault does not clear, consult your dealer for further advice.	
	Tape defective due to surface damage or wear.	Confirm with another tape if noise free and replace the defective tape.	
VTR rewinds automatically during playback.	Tape end detector works during playback due to damaged tape.	Replace the defective tape.	

Recording will not operate correctly			
SYMPTOM	**CAUSE**	**REMEDY**	**CHECKED**
Alarm sound is produced and "📼" indication flashes whenever recording is attempted.	Erasure prevention tab on cassette is broken off.	Use tape with intact erasure prevention tab, or cover tab hole with adhesive tape, if original recording is no longer required.	
Picture is recorded with noise or blank screen.	Aerial or aerial lead is defective.	Check aerial connection to VTR. See page 6. Check your normal TV picture. If there is no picture, check your aerial.	
	VTR is not correctly tuned.	Re-tune VTR. See page 8. Ensure input selector set to TV programme.	
	Input selector is set to A1.	Select the required TV programme.	
Timer recording cannot be performed.	Clock or calendar is incorrectly set.	Check clock and calendar. Set to present time. (Note this is a 24 hour clock.) See page 10.	
	Clock is flashing 0:00.	Set clock to present time.	
	Recording start or stop time settings are incorrect.	Set recording start and stop time correctly. Try a short timer recording a few minutes ahead of the present time to confirm correct operation. See page 24.	
	VTR is not set for timer recording.	Press TIMER REC after programming for timer recording.	
AV external recordings cannot be made.	Input selector is not correctly set.	Select A1.	
	External AV connections are incorrect.	Check that connections for external video and audio source are correct. See page 29.	

Remote controller will not work correctly			
SYMPTOM	**CAUSE**	**REMEDY**	**CHECKED**
Remote controller does not operate correctly.	Remote controller transmitter beam is not reaching VTR.	Ensure that remote controller is being pointed at VTR and that transmitter beam is not obstructed.	
	Distance is too far.	Use remote controller within 7 m of VTR. If this range is not possible, replace batteries.	
	Batteries are exhausted.	Replace batteries by the AA, UM3 or R6 type available from your dealer. Note precaution for replacement on page 15.	
	Batteries are incorrectly fitted with (+/−) reversed.	Fit batteries correctly as shown on page 15.	
Bar code reading is not possible.	Remote controller is in power saving condition.	Press SCANNER ON/OFF to turn it on again.	
	Bar code is not traced correctly.	Practice tracing the bar code from left to right. Each bar code should take around half a second to trace. A beep indicates bar code is read correctly.	
	Bar code sensor cap is blocked.	Remove sensor cap and clean as shown on page 32.	
Bar code data cannot be transmitted to VTR.	VTR is operating.	Stop VTR.	
	Timer record memory is full.	Cancel timer programme to enter a new timer programme or wait until one timer recording has taken place.	
	Bar code reading is not followed by a repeated bleep.	Read bar code again.	

Specifications

NV-SD20A, EA

Information for Your Safety

Power Source:	NV-SD20A; 240 V AC 50–60 Hz NV-SD20EA; 230 V AC 50–60 Hz
Power Consumption:	Approx. 21 watts

Video Recording System:	2 rotary heads, helical scanning system
Video Heads:	4 heads
Tape Speed:	SP; 23.39 mm/sec. LP; 11.695 mm/sec.
Tape Format:	VHS tape
Record/Playback Time:	SP; 240 min. with NV-E240 LP; 480 min. with NV-E240

VIDEO

Television System:	CCIR; 625 lines, 50 fields, PAL colour signal		
Modulation System:	Luminance; FM azimuth recording Colour signal; converted subcarrier phase shift recording		
Input Level:	VIDEO IN (PHONO);	1.0 Vp-p,	75 ohm
Output Level:	VIDEO OUT (PHONO);	1.0 Vp-p,	75 ohm
	RF Modulated; NV-SD20A;	VHF channel 0 or 1,	75 ohm, terminated
	NV-SD20EA;	VHF channel 2 or 3,	75 ohm, terminated

AUDIO

Input Level:	AUDIO IN (PHONO);	−10 dBV,	more than 50 kohm
	MICROPHONE;	−70 dBV,	more than 600 ohm
Output Level:	AUDIO OUT (PHONO);	−6 dBV,	less than 1 kohm
Audio Track:	1 track (Normal-mono only)		

Video Horizontal Resolution:	Colour; more than 240 lines (SP)
Signal-to-Noise Ratio:	Video; more than 43 dB (SP) Audio; more than 43 dB (SP)
Audio Frequency Response:	80 Hz–10 kHz (SP)
Operating Temperature:	5°C–40°C
Operating Humidity:	35%–80%
Weight:	4.6 kg
Dimensions:	380 (W)×89 (H)×357 (D) mm
Standard Accessories:	1 pc. DIN-DIN Coaxial Cable 1 pc. Remote Controller 2 pcs. "R6" size batteries 1 pc. AC Mains Lead 1 pc. Programming Sheet

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.